

IOWA STATE UNIVERSITY

The Economic Impact of Manufacturing in the Marion County Economy:

An Assessment of Area Inter-Industrial Linkages

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This is a technical assistance study of the importance of manufacturing for the Marion County, Iowa, economy. The research uses modified a input-output accounting framework to document the size and impact of manufacturing export sales on the regional economy and it shows the negative outcomes on the regional economy of economic downturns.

Introduction

This research looks at the overall Marion County economy to describe which industries cause the greatest local economic impact. We measure an area economy in a variety of ways. We can, for example, look at the number of jobs in different types of industries like agriculture or manufacturing or we can look at the amount of gross sales or payments made to workers. These kinds of assessments are called direct measures in that we look at each industry to see what it appears to contribute to local economic accounts.

We can also look at local economies in ways that consider the relationships firms in the economy have with one another. This type of measurement considers two dimensions of industrial activity. First, it looks at transactions that are within the economy, paying particular attention to what industries purchase from each other. Second, it looks economic activity that satisfies demands for goods and services that are external to the local economy. This approach breaks an economy into two broad constituent components: production for exports (external users) is considered *basic* employment, and all production that sustains basic employment or otherwise attends to the needs of households in the community is called *non-basic* employment. For a county, an export could mean sales to the neighboring county, another state, or another country. As long as it is not a local sale, it is an export. This approach to measuring economic activity assumes that all non-basic employment in an economy is dependent on basic production.

Basic industries, those producing primarily for export, are relatively easy for most of us to identify. Very large fractions of Iowa agricultural production are for export sales, as are the processed agricultural products that become food, fiber, or fuels manufactured goods. Iowa produces a wide array of other durable and nondurable manufactured goods, too, the preponderance of which is intended for export sales to someone in another state or another country. Some mined goods like valuable ores and oil are intended for export primarily, although Iowa is not now known for its mining industries, as also are tourism (by definition an export – one can't be a local tourist), large government or other institutions like colleges, governmental installations, prisons, and military bases.

In elementary economic analysis, we use ratios of regional industrial specialization to determine which industries are producing for export and which industries are producing primarily for local consumption. From that process we can determine the total amount of employment in an area that is attending to external demand. The ratio of total employment in an economy to the amount of jobs locally satisfying external demand is the basic multiplier. For example, hypothetically, if an economy had 10,000 jobs and there were 6,000 jobs producing for export sales, then that economy would have a basic multiplier of $10,000 / 6,000 = 1.67$. The basic multiplier of 1.67 means that for every basic job in an economy there is $67/100^{\text{th}}$ of a job in the rest of the economy – or that for every 100 basic jobs there are 67 nonbasic jobs.

This research uses a more sophisticated approach to measuring the economic value of production in the Marion County economy. An input-output model (I-O) of the regional economy has been constructed that contains information on 160 different kinds of industries. An input-output model tracks the transactions among buyers and sellers in an economy. As all industries require production inputs, I-O models measure the amount and the kind of inputs that are purchased from local suppliers versus those purchased from external sources (i.e., imports). The mathematics of this accounting let us allocate economic activity into that which is producing for external demand and describe which industries are, comparatively, more important or more valuable to the whole economy.

This study will have two sections:

Part 1. Using data from an input-output model of the entire Marion County economy, the economic impact value of major manufacturing and other important sectors of the economy will be identified. This analysis is different than the conventional impact study in that the process accounts for all inter-industrial transactions along with worker spending when determining the overall importance of the manufacturing sector to the Marion County economy. This type of analysis allows the partitioning of the local economy into that which takes care of community (internal) needs, and that which produces for external (export) demand (like manufacturing, higher education, or tourism). It forgoes breaking of the economy into basic and nonbasic sectors and instead identifies which industries, by virtue of their production and sales for externally-driven demand, account for which fractions of jobs, income, and value added.

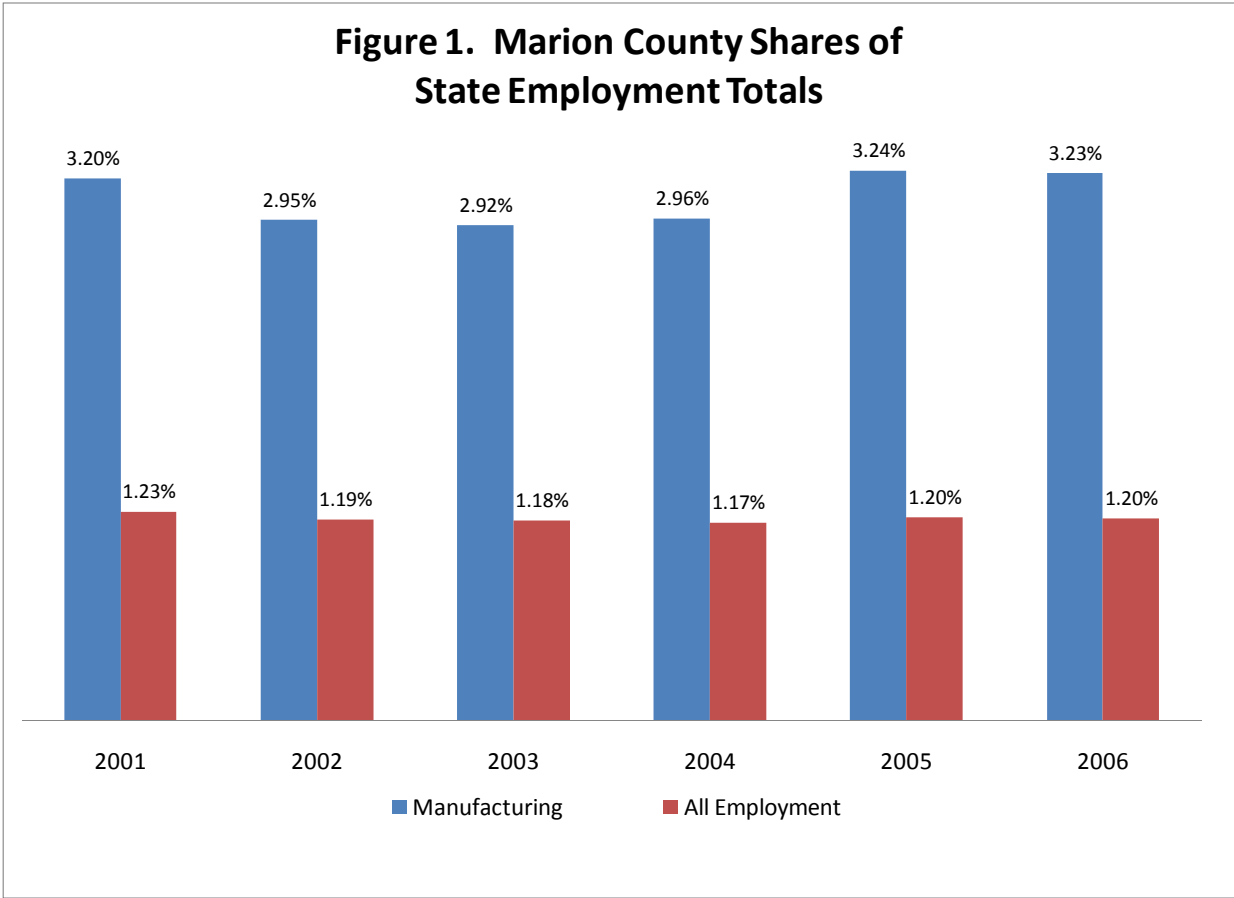
Part 2. The second part of this research uses the modeling capacity generated in Part 1 to estimate the consequences of an economic downturn. Two scenarios are displayed. The first assumes a 15 percent reduction in manufacturing employment – a situation that occurred early this decade. The second compares, head to head, a reduction of 100 manufacturing jobs versus 100 hospitality and recreation jobs. This second comparison is designed to give decision makers a sense of the magnitude of change that happens in two very important, but also very different sectors of the Marion County Economy.

Part 1. Identifying Industrial Economic Impacts

The Basics of the Marion County Economy

The Marion County economy has several obvious economic strengths. Like much of Iowa it has valuable and productive agricultural land. It also has strong cultural, recreational, and entertainment foundations that entice strong levels of visitorship to the region. But more than these, the region has a

very strong manufacturing heritage that produces a large fraction of the region’s income. The prominence and the volatility of the manufacturing sector are demonstrated in Figures 1 through 3. In Figure 1 we see both manufacturing and all jobs displayed over the 2001 to 2006 period as shares of state totals. These data are from the U.S. Bureau of Economic analysis (they only go back to 2001 in this series as there was a restatement and redefinition of industrial codes that makes comparisons over time difficult). The county commanded about 1.2 percent of all Iowa jobs, but it accounted for over 3.2 percent of all manufacturing jobs. That means that, compared to Iowa as a whole, manufacturing activity in Marion County is 2.7 times greater than the state average – and that in a state with a pronounced manufacturing emphasis when compared to the nation.



In Figure 2 we get a sense of the performance of the manufacturing sector over the years as compared to all non-manufacturing in the county. There are two important patterns of note in this display. First, during the recession spell of the early part of this decade, manufacturing employment contracted sharply – 2003 manufacturing jobs were 16 percent lower than in 2001. In fact, manufacturing slid more

drastically than in the state as a whole. Looking back at Figure 1 we see that the county’s share of state manufacturing jobs slid from 3.1 percent to 2.9 percent. This indicates that national recessional cycles may affect this area more acutely than Iowa at large. Second, and this is important, there is evidence that the remainder of the regional economy demonstrated stability. While manufacturing jobs eroded at that time, non-manufacturing jobs actually grew. This tells us that there are industrial growth opportunities in the region that are disconnected from the overall pattern of manufacturing change and that the implied “multiplier effect” of manufacturing expansion and contraction may be muted by other factors, not the least of which might be a flexible regional labor pool available to do other types of work.

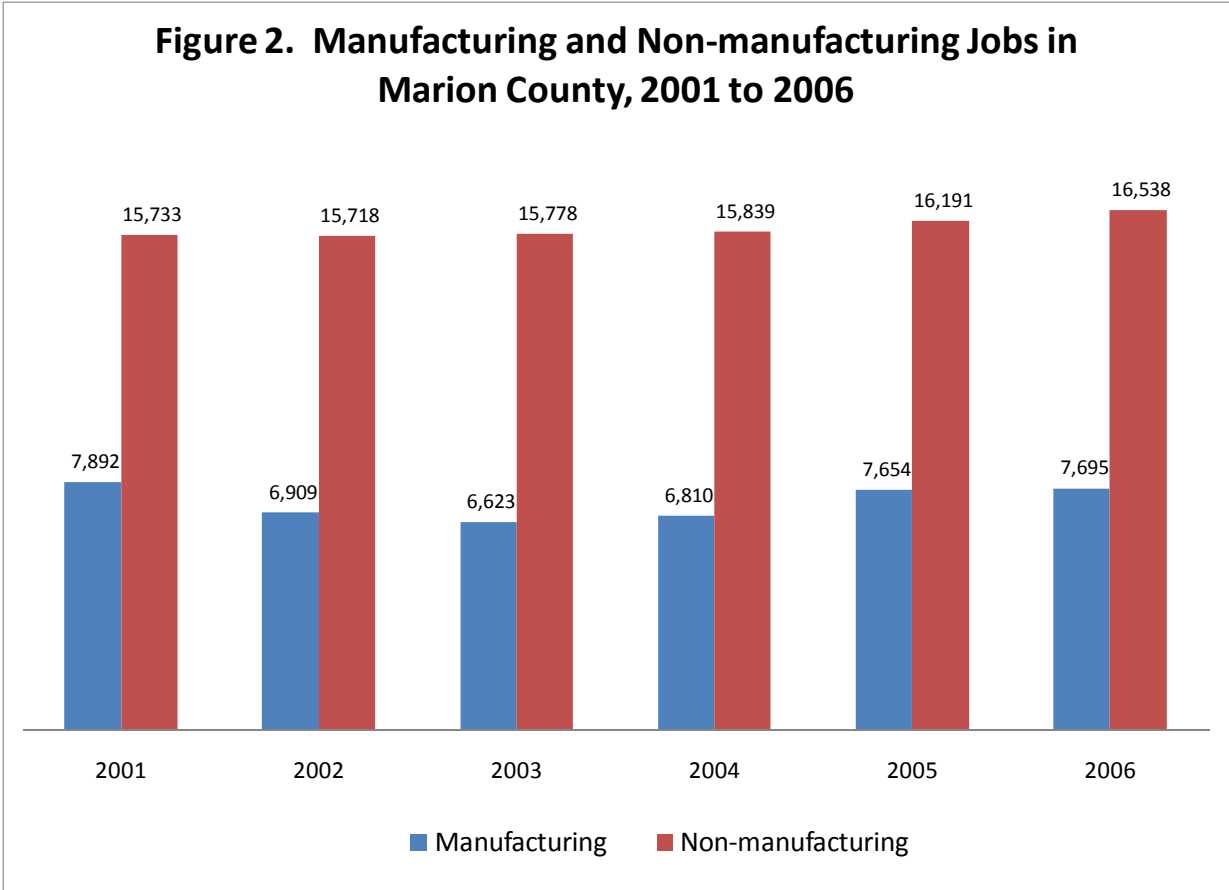
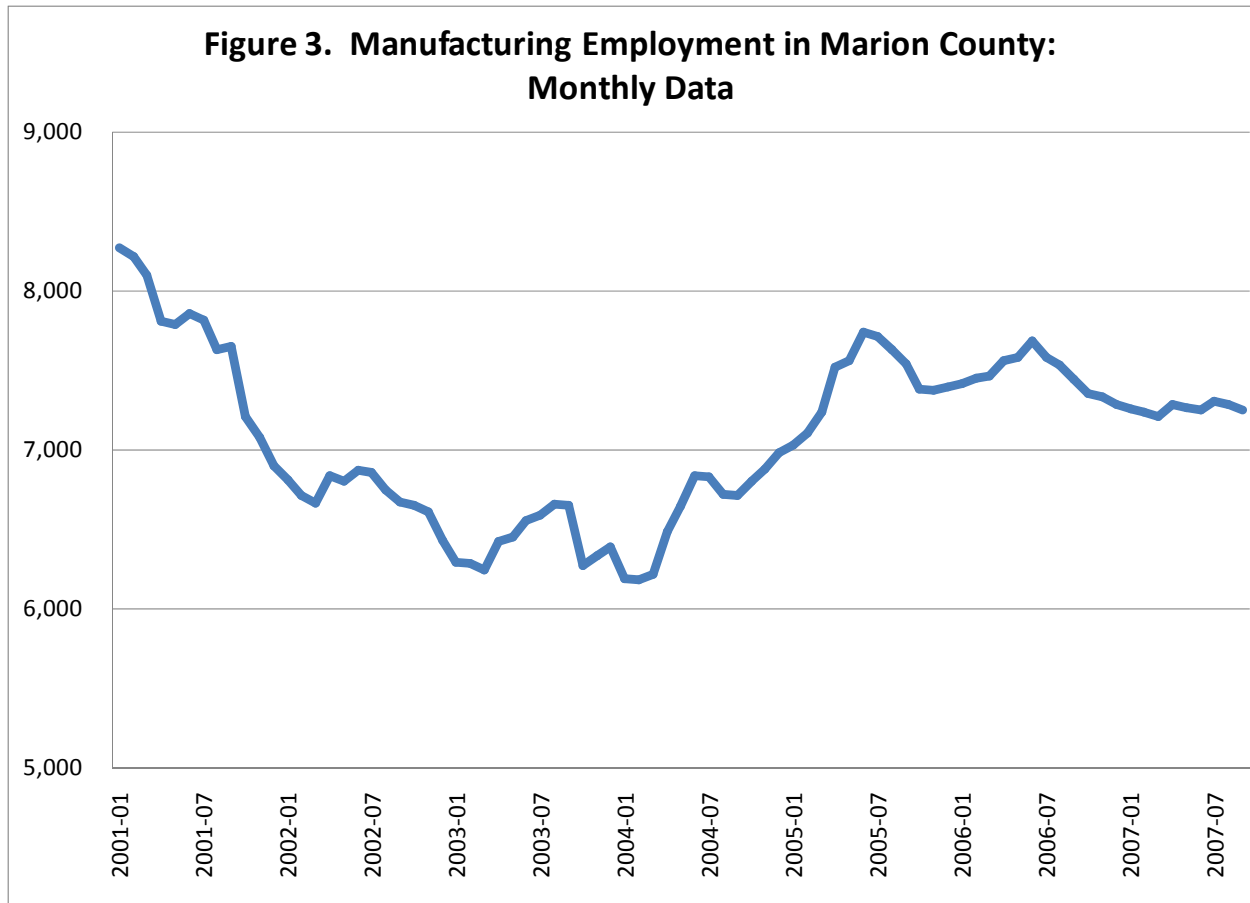


Figure 3 displays manufacturing jobs data compiled on a monthly basis from the Bureau of Labor Statistics. That figure demonstrates the overall pattern of manufacturing job change in the region from the beginning of 2001 through the third quarter of 2007. The declines that beset the region from 2001 through the beginning of 2004 represented a reduction of more than 2,000 jobs. The sector recovered relatively sharply as the rest of the U.S. recovered before peaking at just over 7,730 jobs in the middle of

2005. It is also evident that there had been a slight trend downward since. Manufacturing jobs are over 1,000 lower than the beginning of 2001, and 500 lower than the recent peak in 2005.



The overall volatility of the manufacturing notwithstanding, Table 1 presents a summary of the size of major industries to the whole regional economy. There are three measures displayed. Jobs are different than employed persons. Jobs are counted in the county in which someone works, and a person can have more than one job. Jobs are the more common way in which overall economic health is measured – the more jobs the better, we assume, and losses in jobs are something to worry about. The next measure is labor income. Labor income is the sum of all wages, salaries and benefits that are paid to employees plus the normal returns received by local proprietors for their labor and management of their businesses. We pay attention to labor income levels because we want to be mindful of the type and amount of incomes that are made in an area, which are in turn likely to be used to consume household goods and services. The next measure is value added. Value added contains all labor income plus all returns to investors (dividend, interests, and rents) and the indirect tax payments that are made to governments that are part of the production process. Value added is the same as gross domestic

product GDP. It is the preferred measure for comparing one economy to another and economic activity over time.

The Marion County Economy for 2006 had 21,943 jobs that paid \$860.7 million in labor income, or \$39,222 per job. The overall economy contributed \$1.433 billion in value added to state and national counts of GDP. Manufacturing commanded 37 percent of all jobs, 54.6 percent of labor incomes, and nearly 57 percent of value added. Health and social science employment was second in jobs at 9.5 percent of the total, followed by government employment, and then retail trade. Governments ranked second in labor income at 9 percent, followed by 7.9 percent for health and social services. Even though retail comprised 8.1 percent of jobs, it only determined 4.4 percent of labor incomes, indicating lower pay per job than the county average. Large gaps in job percentages and labor income percentages were also evident in accommodation employment (lodging and restaurants) and in all other services.

Table 1. The Composition of the Marion County Economy in 2006

	Jobs	% of Total	Labor Income	% of Total	Value Added	% of Total
Ag & other	973	4.4%	15.75	1.8%	32.75	2.3%
Mining	22	0.1%	0.59	0.1%	1.04	0.1%
Utilities	39	0.2%	3.25	0.4%	11.59	0.8%
Construction	751	3.4%	29.36	3.4%	33.80	2.4%
Manufacturing	8,108	37.0%	469.55	54.6%	814.38	56.8%
Wholesale Trade	444	2.0%	22.10	2.6%	39.35	2.7%
Trans & Warehouse	785	3.6%	32.00	3.7%	38.60	2.7%
Retail trade	1,784	8.1%	37.50	4.4%	58.54	4.1%
Information	151	0.7%	5.39	0.6%	10.39	0.7%
Finance & insurance	363	1.7%	20.10	2.3%	44.27	3.1%
Real estate & rental	297	1.4%	3.86	0.4%	15.00	1.0%
Prof- scientific & tech	332	1.5%	11.87	1.4%	14.72	1.0%
Management	61	0.3%	3.68	0.4%	4.75	0.3%
Admin & waste services	422	1.9%	5.92	0.7%	7.91	0.6%
Educational svcs	928	4.2%	23.10	2.7%	23.61	1.6%
Health & social services	2,081	9.5%	68.20	7.9%	76.81	5.4%
Art- entertain- recreation	418	1.9%	4.19	0.5%	5.99	0.4%
Accommodation	1,049	4.8%	10.07	1.2%	14.87	1.0%
Other services	1,002	4.6%	16.80	2.0%	19.40	1.4%
Govt & other	1,932	8.8%	77.44	9.0%	165.34	11.5%
Total	21,943	100.0%	860.70	100.0%	1,433.11	100.0%

Industrial Impact Analysis

All businesses buy from one another making sales to either local consumers or households or to the rest of the world. We can distinguish the productivity in a region that satisfies local demand versus external

demand. If we assume that our economy exists to produce for export sales once local needs have been satisfied, then we can apportion exactly how much of the regional economy goes to produce for external markets. This type of analysis involves the manipulation of an input-output account of the regional economy, and it helps us to discern the magnitude of productivity in a region that satisfies external markets and the industries that explain that productivity. Once we identify the flow of trade and services within an economy, we can then apportion the economic impacts of different industries by virtue of their final sales. Final sales are those that accumulate, in this measure, to external markets.

The procedures for this type of analysis are actually the core calculations that are part of every input-output modeling structure. The difference in this measure is that we are not creating an impact analysis that is looking at marginal changes to an economy due to some economic change or “shock.” Instead, we are simply solving for all productivity that is contributing to final demand in the economy.

Table 2 is an initial, abbreviated summary of the consequences of this kind of economic accounting. The direct basis counts economic activity only in the industry that produced the output (output is the sales value of production in an accounting year). According to the I-O tables, manufacturing accounted for 72.1 percent of the value of all output in the region as measured by total sales. When we account on a final demand basis, we reorient industrial activity in the region to take into account all of the inputs into manufacturing that were supplied by regional firms. In so doing, the economic impact value of manufacturing climbs to 83.3 percent. That means that of an entire economy of \$3.84 billion in total output, \$3.198 billion of its economic activity is linked to the manufacturing sector’s export sales.

Now, let’s contrast trade and services. Though they are important employers and producers, by virtue of their combined direct output, they account for 12.1 percent of the region’s total. On an economic impact basis, however, when we consider these industries’ production for final demand to external markets, we see that these industries only account for, combined, 4.4 percent of the total. Most of their economic activity exists to serve existing local enterprises or households – in short they are, as was discussed previously, satisfying the non-basic sector of the economy by providing necessary inputs into export industries or into households.

Table 2. Comparing Direct and Final Demand Industrial Output

	Direct	Percent of Total	Final Demand	Percent of Total
Agriculture	88.91	2.3%	61.85	1.6%
Manufacturing	2,768.26	72.1%	3,197.97	83.3%
Trade	152.66	4.0%	22.00	0.6%
Services	310.69	8.1%	144.61	3.8%
All Other	520.04	13.5%	414.14	10.8%
Total	3,840.57	100.0%	3,840.57	100.0%

This kind of accounting often makes people uncomfortable because it appears to reduce the importance of value of many industries. That is an incorrect way to look at the situation. Take this example: Agriculture produces grain and livestock. If agriculture in a county sells all of its grain and livestock to external buyers, then it is satisfying external demand. If on the other hand our grain and livestock producers sell their grain to an ethanol plant or their livestock to a meat packer, then their agricultural output now becomes an input into two kinds of manufacturing. The value of the raw or on the hoof agricultural commodity is increased because of processing, but agricultures original values are preserved, and that enhanced commodity is then sold for export sales at much higher prices than raw or on the hoof commodity sales. The farm sectors numbers are therefore an important part of the manufacturing sector, in this example, and are part, therefore, of manufacturing's economic impacts. This kind of analysis does not diminish one industry versus another; it simply clarifies the flow of commodities and the value of production.

That said, Table 3 summarizes the final demand economic impact summary for Marion County for jobs, labor income, and for value added production. Using this basis of accounting, manufacturing sales to final demand account for 71 percent of the county's labor income (in manufacturing and in the supplying industries), 74 percent of all value added, and 61 percent of all jobs. For the county, all other services, within which tourism, lodging, and eating and drinking establishments are located, account for 6.2 percent of labor income, but 10.6 percent of jobs. State and local government accounts for 5.8 percent of labor income and 6.5 percent of jobs.

Table 3. Final Demand Economic Impact Summary for Marion County

	Labor Income	PCT of Total	Value Added	PCT of Total	Jobs	PCT of Total
Agriculture	16.35	1.9%	32.94	2.3%	653.53	3.0%
Wholesale	2.25	0.3%	4.03	0.3%	52.63	0.2%
Mining	0.45	0.1%	0.80	0.1%	16.57	0.1%
Construction	33.68	3.9%	43.80	3.1%	946.53	4.3%
Manufacturing	610.23	70.9%	1,061.90	74.1%	13,319.13	60.7%
Retail	6.01	0.7%	9.71	0.7%	276.28	1.3%
Transportation	9.82	1.1%	12.87	0.9%	262.57	1.2%
Utilities	0.68	0.1%	2.20	0.2%	11.40	0.1%
Information	1.56	0.2%	2.91	0.2%	47.05	0.2%
Finance and Insurance	5.69	0.7%	12.16	0.8%	124.03	0.6%
Real Estate	0.41	0.0%	1.31	0.1%	26.35	0.1%
Professional Services	2.90	0.3%	3.93	0.3%	87.48	0.4%
Other Services	53.01	6.2%	68.69	4.8%	2,324.95	10.6%
State & Local Govt.	49.65	5.8%	62.53	4.4%	1,420.82	6.5%
Federal Govt.	19.84	2.3%	22.93	1.6%	414.21	1.9%
Remainder	(0.22)	0.0%	(5.86)	-0.4%	(8.40)	0.0%
<i>Households</i>	<i>48.40</i>	<i>5.6%</i>	<i>96.26</i>	<i>6.7%</i>	<i>1,966.88</i>	<i>9.0%</i>
Total	860.70	100.0%	1,433.11	100.0%	21,942.00	100.0%

There is a category called households in the table. We include that because households are an important component of every economy. Marion County households have access to incomes from

sources outside of the local economy. They may work in a neighboring county (therefore exporting their labor for wages and salaries that are consumed locally), they may receive Social Security payments or pensions, or they may own other investments. Accordingly, households as consuming industries with these external income sources account for 9 percent of jobs, 6.7 percent of value added production, and 5.6 percent of labor income generated in the region.

The contrast between Table 1 and Table 3 is intended to give communities a sense of their inter-industrial dependencies as well as their vulnerabilities. If an economy is strongly linked to one sector or a very few dominant sectors, then if those sector go through a rough patch, the entire regional economy may suffer as well. If, for example, there was a reduction in sales by 25 percent across the board in the region's manufacturing sector, it would mean those industries would need less labor and would reduce the amount of inputs that they bought from the regional economy. As their demand for inputs waned, then jobs would be lost in the supplying industries, and in the industries that supply them, and so on. That is the multiplier or ripple effect of a manufacturing contraction. The same kind of multiplier effect happens, say in the tourism industry if, for example, high fuel prices decreases the number of visitors to a region.

An economy that is heavily dependent on one dimension of economic activity can go through boom and bust cycles. The evidence presented Figure 1 indicated that in the local recessionary period of 2001-2004, the Marion County manufacturing sector reacted more strongly than the state as a whole – it contracted more on a percentage basis and stayed down longer than the rest of the state. It was also evident in Figure 2 that the nonmanufacturing economy did not contract. This is evidence that there is increased diversification in the regional economy that helped buffer the effects of the slow-down.

Part 2. The Consequences of a Reduction in Manufacturing Employment

The national and statewide economic slowdown between 2001 and 2003 hit the Marion County manufacturing sector hard. The region realized over a 16 percent reduction in manufacturing jobs between 2001 and 2003, and overall employment in the region waned as well – in 2001 the county claimed 1.23 percent of the state's total jobs, by 2004 that share had dropped to 1.17 percent.

The aforementioned impact model can be used to measure what would happen to the region if there was a reduction in manufacturing employment. These types of economic impact analyses help us to gauge the total possible changes that would happen in an economy were there a durable reduction in the number of manufacturing jobs in the region. When you reduce production in manufacturing, you also reduce demand for locally supplied goods and services. All of these activities reduce the need for labor, and accordingly, labor incomes go down. As labor incomes go down, household spending levels must shrink as well, which in turn reduces the demand for all manner of goods and services that satisfy

household demand. When households slow their spending, then the firms that supply goods and services to households see reductions in sales, they lower their demands for inputs and for labor, and there is another round of area-wide reductions that must work their way through the regional economy.

This iterative growth or decline process is at the core of input-output models and of basic-nonbasic economic analysis: if the basic sector shrinks, so too must the nonbasic sector. In the upcoming assessments, two dimensions of economic change are assessed. In the first scenario, an across the board reduction in manufacturing jobs (and total manufacturing output) of 15 percent is entered into the model. In the second scenario, there will be a side by side comparison of what happens to the local economy per a reduction in 100 manufacturing jobs versus a reduction in 100 accommodation, recreation, entertainment, and food-service jobs, the primary industries that are associated with the tourism and hospitality economies.

Scenario 1. Reducing Manufacturing Employment by 15 percent

Table 4 itemizes the job and output losses to the manufacturing sector. A 15 percent reduction would reduce manufacturing employment by 1,216 jobs, labor incomes by \$70.4 million, and industrial output by \$415.24 million. In and of itself, this is a very sharp reduction in regional economic activity – a \$70.4 million reduction in area labor income, for example, would be expected to have a very noticeable effect on local goods and services sales to households.

Table 4. Direct Impacts of a 15 Percent Reduction in Manufacturing Jobs

Jobs	1,216
Labor Income	\$70,431,871
<i>Per job</i>	<i>\$57,933</i>
Industrial Output	\$415,238,745

When those impacts are inserted into the I-O model for Marion County so that there are iterative and concomitant reductions in all linkages to the manufacturing sector plus the reduction in worker spending, we get the total economic impacts of the scenario. These values are itemized in Table 5.

When the impacts work their way through the entire economy, there are much larger consequences for Marion County. Total industrial output losses climb to \$503 million, the jobs-loss total grows to almost 2,100, the value added reduction (the same as GDP) goes down by \$166.4 million, and the earnings that go to workers and to proprietors are reduced by \$95.7 million (remembering that earnings are a part of value added). This table also has a line estimating the reductions in household income in the area. As

not all workers live in Marion County, there is an apportioning of labor income changes into area households. The overall impacts will reduce Marion County household incomes by \$84.7 million.

Table 5. Total Economic Impacts From a 15 Percent Reduction in Manufacturing Jobs

	Original Economy	New Economy	Scenario Impacts	Impacts Per Job
Total Industrial Output	\$3,840.57	3,337.64	(502.9)	239,721
Value Added	\$1,433.11	1,266.68	(166.4)	79,329
Labor Income	\$860.70	765.01	(95.7)	45,611
Jobs	21,942	19,844	(2,098)	—
Household Income	\$1,070.58	985.85	(84.7)	—

Dollar amounts in millions

We can also produce sets of impact multipliers from this example by dividing the total values in Table 5 by the direct values in Table 4. Accordingly, the jobs multiplier is 2,098 / 1,216 = 1.73. For every 100 manufacturing jobs lost, the rest of the economy would shed 73 more jobs. The labor income multiplier is \$95.7 million / \$70.431 million = 1.36.

Scenario 2. Comparing Hospitality with Manufacturing Declines

This next comparison contrasts the kinds of economic consequences to the region that would occur from a manufacturing slow-down versus a similar number of job losses in the hospitality industries of the region, primarily lodging, attractions and recreation, and eating and drinking establishments. As tourism is another important aspect of the regional economy, losses to that industry are also a distinct possibility from a recession. That coupled with a recent spike in motor vehicle fuel prices could further repress visitorship locally.

Table 6 displays the comparisons of 100 job losses in both composite sectors. The differences are stark owing primarily to the much lower income values of the two sectors and the value of gross sales. Even though both sectors are reducing jobs by 100, the direct labor income reductions are 2.6 times greater for manufacturing, and the industrial output impacts (or gross sales) in manufacturing are 6.4 times greater. It must be remembered that the overall array of inputs required for manufacturing are much greater than for typical service industries as is the overall value of goods produced per worker.

Table 6. Direct Impacts of 100 Job Reductions in Hospitality Employment and in Manufacturing

	Hospitality	Manufacturing
Jobs	100	100
Labor Income	\$2,213,658	\$5,793,286
<i>Per job</i>	<i>\$22,137</i>	<i>\$57,933</i>
Industrial Output Value	\$5,368,448	\$34,154,945

In Table 7 we get a comparison of the economic impacts of the two situations. Each sector’s 100 job reduction was run through the model separately to ascertain how the regional economy adapted to the respective job losses. Total value added in the region reduces by \$13.7 million in the manufacturing loss compared to \$3.6 million in hospitality industries. The labor income loss impact is \$7.9 million in manufacturing and \$2.8 million in hospitality. Total job losses in manufacturing are 173 (for a jobs multiplier of 1.73) compared to 122 in hospitality industries (for a jobs multiplier of 1.22). Lastly, this situation would translate into a reduction of \$7 million in household income under the manufacturing loss versus a \$2.3 million reduction in the hospitality industry loss.

The data in Tables 5 and 7 are worst case consequences that would result were the job losses made permanent, all laid-off job holders left the area, and there were no social assistance mechanisms to help smooth out economic cycles. In fact, these economic impacts do not materialize for awhile because workers that are laid off, as in the manufacturing scenarios, are very likely to be covered by unemployment insurance, may be eligible for other forms of social assistance like Food Stamps and housing or energy aid, along with other state or federal aid to workers. All of these kinds of assistance help to buffer the negative consequences of either a plant closing or cyclical layoffs, until over time industry begins to expand and economies pick-up. Workers that are in the hospitality industries are much more likely to be working part-time and part-year, however, and to not have accumulated the necessary quarters of continuous work to be eligible for unemployment insurance, so losses in the hospitality industries often affects households more directly during downturns.

Table 7. Total Economic Impacts, 100 Job Reduction in Hospitality Employment and in Manufacturing

Manufacturing	Original Economy	New Economy	Scenario Impacts	Impacts Per Job
Total Industrial Output	\$3,840.57	3,799.20	(41.4)	(239,721)
Value Added	\$1,433.11	1,419.42	(13.7)	(79,329)
Labor Income	\$860.70	852.83	(7.9)	(45,611)
Jobs	21,942	21,769	(173)	—
<i>Household Income</i>	<i>\$1,070.58</i>	<i>1,063.61</i>	<i>(7.0)</i>	<i>—</i>
Hospitality Industries	Original Economy	New Economy	Scenario Impacts	Impacts Per Job
Total Industrial Output	\$3,840.57	3,833.37	(7.2)	(58,923)
Value Added	\$1,433.11	1,429.50	(3.6)	(29,543)
Labor Income	\$860.70	857.92	(2.8)	(22,802)
Jobs	21,942	21,820	(122)	—
<i>Household Income</i>	<i>\$1,070.58</i>	<i>1,068.26</i>	<i>(2.3)</i>	<i>—</i>

Dollar amounts in millions

The estimates that have been produced are county-wide. The consequences of these scenarios can be apportioned within the regional economy as overall industry is distributed currently as well as by virtue of the residences of the regional workforce. The reduction in manufacturing impacts will concentrate in and around the Pella area, for example, more strongly but consequences for households might be significantly felt in the rural areas and in Knoxville as there is a steady stream of incommuters from those areas community. Reductions in hospitality industries and recreation of course can be felt in both communities – one with cultural-related amenities and one with racing-related attributes.